REPORT RESUMES

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FOSTERING AND REINFORCING INNOVATIVE BEHAVIOR IN SELECTED SCHOOL PERSONNEL, A MONOGRAPH OF SELECTED PAPERS PRESENTED AT TWO INSTITUTES (TUCSON, SUMMER AND FALL, 1966).

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PRESENTED ARE A SELECTED GROUP OF PAPERS CHOSEN FROM THOSE GIVEN AT TWO INSTITUTES ON FOSTERING AND REINFORCING INNOVATIVE BEHAVIOR IN SELECTED SCHOOL PERSONNEL. THE TOPICS PRESENTED INCLUDE--(1) THE VALUE OF RESEARCH IN THE CLASSROOM, (2) THE NECESSITY FOR TEACHERS TO BE INNOVATIVE, (3) THE FACTORS RELATED TO ACADEMIC ACHIEVEMENT, (4) THE USE OF PROGRAMED MATERIAL IN THE CLASSROOM, (5) THE NEED FOR SCHOOLS AND TEACHERS TO HAVE SPECIFIC OBJECTIVES, AND (6) THE NECESSITY FOR INNOVATION AND EVALUATION WHEN APPLYING FOR FUNDS UNDER THE ELEMENTARY AND SECONDARY EDUCATION ACT. SOME BIBLIOGRAPHICAL REFERENCES ARE INCLUDED WITH THE PAPERS. (ES)

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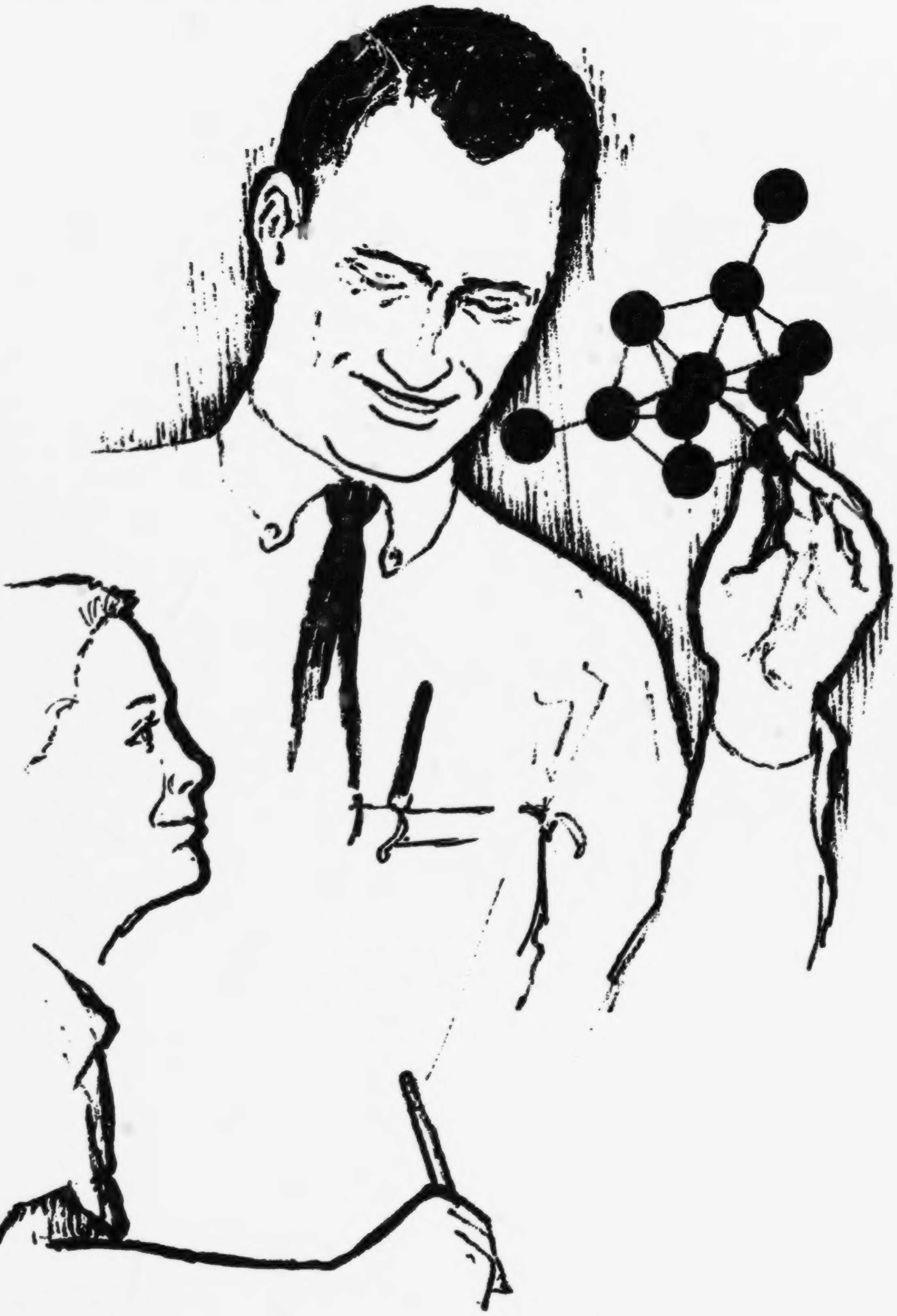
FOSTERING AND REINFORCING INNOVATIVE BEHAVIOR IN SELECTED SCHOOL PERSONNEL



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FOSTERING AND REINFORCING
INNOVATIVE BEHAVIOR
OF
SELECTED SCHOOL PERSONNEL

A Monograph of Selected Papers
Presented At
Two Institutes Held in Tucson, Arizona
During the Summer and Fall, 1966

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PREFACE

From the time of the earliest program efforts of the Laboratory, a prime purpose has been to involve people--especially teachers and principals. These are the persons who must be involved fully when the dissemination process begins; hence early involvement can provide a degree of readiness.

The institutes at Tucson, dealing with the reinforcement of innovative behavior with teachers and principals, were two of four such institutes for school personnel sponsored by the Laboratory within the region during the summer and fall of 1966. In each case, the institute followed the topical theme indicated by its title. There has been a follow-up during the present school year to determine observable differences in the performance of the institute attendees back at their respective jobs, differences which could have resulted from institute attendance. However, the reports included in the institute reports are of the initial activity and do not deal with the follow-up plan.

The institutes held at Tucson, and headed by Dr. David Smith of the University of Arizona, represented what the Laboratory staff considered to be a successful effort toward the objective of involving school personnel in a meaningful way. To the Director, this represented one of the early impacts of this Laboratory program upon the practicing educator. The presentation texts contained in this report provide some excellent and practical suggestions. They are commended for your reading!

Paul V. Petty
Director, SWCEL

INTRODUCTION

This publication includes a selected group of papers chosen from those given at two Institutes on Fostering and Reinforcing Innovative Behavior in Selected School Personnel, sponsored by the Southwestern Cooperative Educational Laboratory, Inc., which were held in Tucson, Arizona, during the summer and fall of 1966.

The basis for the Institute program stemmed from a set of concepts emerging from the feeling that new innovations, the evaluation of the results of research, and similar activities, may need to be elevated to a position of occupying a more significant role as a component of the total school program. Teachers are, for the most part, concerned with the pupil as they interpret him within a framework largely influenced by tradition.

Teachers are not typically persons possessed with a desire to innovate, nor do teachers as a group avail themselves of literature dealing with the results of research and new innovations.

School administrators have all too frequently failed to create an environment that would promote such behavior in teachers, and teachers have not been encouraged by certain rewards to break from tradition and create or innovate. Thus, there may be an administrative lethargy present that fosters adherence to the mean rather than an encouragement to change.

Typically, school district personnel do not possess adequate information about recent legislation affecting classroom practice, nor do districts have the staff to promote classroom activities with a research or evaluative goal.

The Institutes for teachers and administrators stemmed from a recognition of the foregoing problems and the possibility that an organized Institute program for school personnel could serve to foster change.

The initial Institute was attended by 56 teachers chosen by the administrators of 28 districts. The later Institute involved the same number of participants from the same districts and included the superintendent and a building principal.

The primary objective of the Institute for teachers was to promote creative and innovative behavior as described. The Institute program utilized key consultants, group leaders, selected materials, and a program designed to stimulate the participant teachers to return to the school and apply these kinds of behaviors to their everyday practices.

The one-day program for principals (chosen from the same individual school as the teachers) and the superintendents (from the same school system) was designed to make these administrators more sensitive to the need for creative efforts in teachers, and to foster and reward such behavior.

David Wayne Smith
Director, Rehabilitation Center
University of Arizona
Institute Program Coordinator

RESEARCH: THE CLASSROOM ORIENTATION

Dr. Lloyd E. McCann
Professor, Department of School Administration
College of Education
University of Arizona

It is a pleasure for me to greet you on behalf of the Southwestern Cooperative Educational Laboratory. I could give a long list of reasons for this pleasant experience, but just let me say one or two things. In the first place one of the functions of the Laboratory is to undertake activities that make some difference in the classroom. So in organizing this Institute as one of the first units in a region-wide plan to encourage research, we are pleased to make a beginning in dealing with the people who staff the classroom. It is a very real pleasure to be associated with classroom teachers in this institute activity.

In the second place, as the plans for the institute developed, we began to get reactions from people in the field who seem to regard this Institute as a kind of prestige opportunity. We had not thought of it that way, although I can see that this is a very natural attitude. We had to be selective in making plans for enrollment at this Institute. We were not able to invite all the teachers from all the school systems that we should have liked. We were really dealing with a very practical problem of getting a group of people who might reasonably work together with some effectiveness. But I can see that the selection of those school systems was in one way a kind of a compliment. We did not knowingly invite people who lacked interest or willingness or from school systems that lacked resources to work effectively with a research program.

But more particularly your superintendents passed a kind of a compliment on to you when your names were suggested for participation in the Institute. I know the superintendents did not name all of the good people they have--some teachers had other commitments--but I am sure that the superintendents named teachers that they thought had some enthusiasm, some energy and some willingness to develop their professional skill including possible research activities. So I suppose this Institute is really a select kind of experience for all of us.

Now suppose that we look for a few minutes at the topic assigned to me, "The Classroom Orientation of Research." This Institute has at least two central ideas. First, there is an implication that research is part of the business of a great many people. Some people may have conflicting responsibilities great enough that they should not spend much of their time in research. It is not all of the business of most of us. Yet when Congress passed the Aid to Elementary and Secondary Education Act they included in it a section dealing with research. In effect they adopted an idea that research ought to be one of the significant activities of professional workers in education; especially of classroom teachers. The first job for most of us is teaching children, but the improvement of teaching is the final objective of research.

Now in discussing classroom activities in research it seems to me that there are about five possible phases of activities which we may well consider in opening the present Institute. The first step is the recognition and description of a researchable problem. Research is designed to answer questions or to test ideas. If we are to do this well the question or the idea has to be defined. Now we said "researchable problem." This does not imply that research is concerned with something that is wrong; something that is bad. The problem may be how to get the maximum benefits out of an already good situation. But whatever it is, the definition of the problem is one of the areas of research in which every teacher can participate.

I am sure that the people who invent theories and many of the pure laboratory scientists will also find problems to be solved or ideas to be tested. This does not diminish the importance of the classroom recognition of problems. The basic idea in this Institute is that the profession of teaching needs to take advantage of every resource. We need the problems which originate in the classroom. Perhaps not every teacher will go through the procedure of trying to answer the questions. But the recognition and description of classroom problems is an essential part of the whole process and it is one in which every teacher may participate.

I would like to label the second of these research phases "Exploration." First a problem must be identified and described. Then creative, imaginative, enthusiastic teachers try out possible procedures to deal with it. We have had a great deal of educational exploration in the Arizona schools. I should like to pass a commendation to the teachers in all of the schools that have developed these creative explorations.

You already know of examples where creative, energetic people are trying out new procedures to improve classroom work. Many of you, I am sure, have been engaged in activities of this kind, and you know other teachers in your school system that are also exploring new procedures.

I think this exploration is a very essential second step. We do need to try things out before we get too scientific. This exploration is a creative process--a creative act. It is one in which many teachers participate regularly and it is one that ought to be encouraged.

The third step is a more familiar one. This step is to undertake the careful, disciplined, controlled, scientific type of procedure we ordinarily think of when we mention research. Once exploration has progressed far enough so that we can see that it has value, we need to analyze the complex procedure, (and most classroom procedures are complex) to try to find out what are the particular features in the innovation which really produce the good results. This means that we have to define our activities very carefully and maintain them throughout a testing period. Afterward we should be able to look at the procedures and say, "These are some aspects which work. Here are some others that do not work. Here are others that progress satisfactorily, but they do not really create the difference that we can see in the final results."

We do not need tonight to consider in detail the procedures of this particular phase of total research activity. But it is an important phase, and it is one in which at lease some of you people will be engaged from time to time. It may be one that equally creative and successful teachers may not engage in very often. Someone must carry out this very necessary step. But this scientific activity is not the only phase of research which ought to concern the teacher in the classroom.

Step Four is one in which I hope many of you will at one time or another become involved. It is one which is often omitted. It is also one which contains an opportunity, that is even more often missed. This is the phase that we refer sometimes to "Field Testing" or "Classroom Testing." The general idea is that once Step 3, the scientific investigation, has been concluded with favorable results, the findings ought to be tried out in different kinds of classrooms to be sure that the experiment did not take advantage of a particular local situation, or the personality or the skills of an individual teacher, or something of this sort.

I would like to emphasize the importance of the classroom testing of research results. Let me do it first by comparing it to the experience of a successful midwestern farmer which the farmer himself described to me. They were having a local farm "clinic" on how to improve farm production. The visiting expert was trying to persuade this very successful farmer that he ought to use the soil testing and seed analysis and other services available from the extension centers.

The farmer said, "But I told him we were already beyond that. Testing the soil and so on does not show everything we need to know to increase crop yields. I told him I had set aside forty acres in which I had eight five-acre plots of corn, and I was trying out the phosphate fertilizers and the nitrogen fertilizers in various amounts, and trying various ways of putting them into the soil. If I send the soil in for analysis, the experiment stations won't know whether my subsoil is hard and irrigation water won't drain, or whether it is so loose and sandy that the water will leach the fertilizer out, or how much slope there is to my rows or anything else that is important. But I can try all of these things out and I do that every year. Next year I'll try eight new combinations."

Well the guy said, "Yes, but you might lose some money this year while you are trying it." I told him, "Of course I might. But two or three hundred dollars is a cheap price for me to pay to find the right combination of fertilizer and crop care and everything else that I need to do the best job on this farm."

Now, I would like you to notice three or four things about this particular story, because they relate to classroom testing of research.

Item 1. The farmer was trying a local application of research findings as a regular practice in his total farm plan. If there is a fair parallel with teaching, this would mean that progressive teachers ought to be trying the results of research in their classrooms as part of their regular procedures.

Item 2. This farmer knew what the results of research and experimentation were. It is evident from the conversation that he and the expert were able to talk meaningfully because both of them knew what research had been done. If the teaching situation is parallel, this means that effective teachers ought to be studying the results of research practice regularly.

Item 3. The field testing the farmer was doing was carefully defined and systematically carried out. At the conclusion of it he could weigh the corn from each five acre plot and find out the results of his experiment. The implication for teaching is that procedures ought to be carefully measured.

Item 4. This farmer carried on his research activities as only a part of his total plan. The farmer's main job was to grow corn. He continues to experiment, but he conducts the experiment as only part of his operation. This means that in teaching our job is to educate children. We will do classroom testing, but we will try new procedures as only single units of our total instructional activities. The rest of the regular teaching program goes ahead at the same time.

Item 5. Perhaps we ought to notice one other thing. The farmer did his production testing as his own project. If we carry the parallel to school situations it means that a school system may undertake the field testing of the project; they do not need to wait for a university or the Southwestern Cooperative Educational Laboratory or any other agency to promote a particular testing project. Similarly, field testing may be done by an individual teacher. She doesn't need to wait either. The project should be carefully done so that it does not interrupt the regular purposes of teaching and adequate testing should be carried out to be sure that the results of the new procedures are clearly identified.

Basically the procedure of field testing is designed to answer the question, "Is a particular research idea explorable? Can it be applied in different places and under different conditions?" One activity of the Southwestern Laboratory will be to take the findings of research which have been conducted under controlled situations and then try them out in a whole series of classrooms in the way that we have discussed. This is necessary to be sure that new findings are really adaptable to many different classroom situations. I think classroom testing of research is an activity in which a great many teachers will be involved from time to time, either on behalf of their own school systems, in carrying out their own projects, or in carrying out projects in connection with some research organization such as the Laboratory.

This brings us to the fifth important consideration. Once problems have been identified and explorations have identified procedures to deal with them; once explorations have been subject to rigorous, disciplined, controlled research procedures; once findings have been field tested to insure that they will actually work in different classroom situations, there is then the job of dissemination. This is a job of introducing verified findings into wide-spread classroom use.

This is a very difficult thing to do. The regional laboratories will be undertaking this activity as one of their major functions. The ERIC (Educational Research Information Center) system will provide another avenue for dissemination. But there is a reverse side to this of importance in the classroom. This is to say that individual teachers and individual school systems will need to develop systematic procedures for keeping abreast of research findings. Local school systems need to develop a practice of looking toward the findings of educational research as a major resource in dealing with local and individual educational problems.

We said this is a difficult thing to do. It may become even more difficult as the results of more and more research projects become available and choices have to be made among two or more competing ideas, all of which appear to be successful. But dissemination on one hand and the active solicitation of research findings by educators on the other are very important procedures. The ultimate object of all research is to improve the learning environment for youngsters committed to schools. Dissemination is the fifth step in the analysis of classroom orientation for research.

Initially we indicated that the present Institute had one major focus. This lay in the suggestion that the various steps in research are part of the professional business of a great many people, classroom teachers importantly among them. I hope that this analysis has helped to make the scope of this point understood. There is one other point which might be used to summarize the discussion. This is that participation in research activities is likely to provide a satisfying personal and professional experience for classroom teachers.

All of us like to increase our concept of how important we are in the world. Participation in group activities which are themselves important tend to satisfy individual people. It is important to improve the results of the educational program. We improve those results only when we improve the materials, the procedures, and the general environment through which education takes place.

Really, participation in research programs represents a major opportunity for classroom teachers. The purpose of the present Institute is to get a group of teachers in this area who will recognize the possibilities for them and for teachers generally in classroom-oriented research. Then we should come to a common understanding of how this objective may be sought, and should envision particularly the rewards which it may produce in the form of improved education and in the form of satisfactions which each of us cherish for ourselves.

We hope you will enjoy the Institute and that you will find it a very helpful and valuable experience. I am sure that you will. All of us look forward to improvements in the educational process. Improvement is the ultimate goal of the activities that we are beginning with this Institute.

INNOVATION: INVENTION PLUS IMPLEMENTATION

Dr. Bowen C. Dees
Vice-President
University of Arizona

I feel somewhat out of place here this evening. I am a newcomer to Arizona and to the Southwest. I am not an expert on school affairs. I feel somewhat as though I should take the advice which Disraeli gave to a callow new member of the House of Commons a number of years ago who asked the prime minister whether he as a newcomer should take active part in the debates. After a quick appraisal, Disraeli said: "No, I think not. It would be better for people to wonder why you didn't speak, rather than to wonder why you did."

Perhaps I should now explain why I wanted to talk to you this evening. For some fifteen years I was associated with the National Science Foundation. As I hope some of you know, the earliest federal support in the area of course content improvement was in the area of science and mathematics. Years ago, when we first got started on this sort of thing, I had the opportunity of working with the NSF's Division of Scientific Personnel and Education where this support was first provided. In that post I had a particularly good vantage point from which to view the various things that were developing at that time, and in those days part of my energy was devoted to the task of convincing people that they should devote time and effort to this business of trying to improve the instructional materials to be used in schools at all levels. We were reasonably successful in convincing a large number of college and university professors (as well as teachers in the high schools) all over the country that this was a worthwhile endeavor. This, and more recently the much more generous support which has been forthcoming from the federal government and from some of the states and some of the private foundations, has now in all fields led to a burgeoning of activity which is bringing about the development of a great deal of new, improved instructional material and new ideas that can be used in the classroom.

Having had some part to play in getting this movement started, and realizing fully the most important thing is getting these ideas actually used in the classroom, it seemed to me that I had an obligation to come this evening and share with you some of my thoughts with respect to the importance of the classroom teacher in getting the job done that is needed all over the country today.

Qualitative improvement--the right kind of change--is what we really mean when we speak of innovation. Progress, in the sense in which we ordinarily use it, is a thing we as Americans are traditionally very fond of--we like the sound of the word. But there is abundant evidence that we still have not found it possible to push ahead in this area as fast, as vigorously, as hard, as our aspirations demand. We need to innovate still more, in order to bring about qualitative improvement in our schools.

I asked to be allowed to speak this evening on the topic "Innovation: Invention Plus Implementation." My thesis, from which that title derives, can be put in these terms: Meaningful innovation requires that useful inventions be effectively implemented.

Invention, the making of something new, obviously applies to ideas, techniques, and processes, as well as to cotton gins, telephones, and transistors. Today, research is the cornerstone of invention, and yet we know that despite the upsurge in research in education in the last few years, there is still not nearly enough research going on in this area. We need more involvement of more people at more levels from more disciplines--and all of this requires, in particular, the involvement of classroom teachers. Teachers can invent, in the terms in which I am using the term, and they must implement. As inventors, they can and do play several roles. The teacher in the classroom, as part of the inventive process, should develop new ideas and approaches for his own use in his own immediate environment. Teachers, as members of groups, working on new materials and on new ideas, can be most helpful in lending a sense of reality to the entire process. Thirdly, teachers are important as "testers," trying out new ideas and providing essential feedback in the form of both objective and (importantly) subjective data to research workers and thereby providing guidance for further steps in research. All these things you, as teachers, should do. Some you can do on your own, some you can only do if you actively seek to participate with others.

But invention is never enough. Relatively few of the patents that are issued by the patent office ever lead to any very important developments, because most inventions are never carried effectively into practice. Let me remind you that my thesis is that meaningful innovation requires that useful inventions be effectively implemented. In education as we know it, teachers are the key to the implementation of new ideas. Unless you and your colleagues help develop new educational inventions and carry out successful searches for new ideas, no matter where they may be developed, and then see to it that these inventions are put into practice in significant ways in your schools--unless you do these things, innovation cannot thrive as it should, and many years from now we will still be hearing after-dinner speakers saying that we still are not moving ahead as well as we should in our schools.

With respect to educational innovation, you as teachers might well tack up on your walls the slogan that President Truman made famous: "The buck stops here." No federal government official, no state or local official, no school administrator, no school board member, can assure an adequate rate of progress in educational improvement in U. S. classrooms. No individual teacher can either, but collectively--each teacher doing the best he can--the teachers in our schools today are our last best hope for assuring effective, worthwhile educational innovation.

It would be foolish for me to argue that a classroom teacher can invent or implement new and improved ideas unless there is a willingness to accept change in the school and community he serves. However, I hope you will not forget that teachers, as well as administrators (and, indeed, all of us) must try to do everything possible to cultivate a climate which is receptive to educational change. Teachers can play an especially important role here. As professionals, using their ability to pick and choose, sifting out those ideas which are most promising, teachers can help by showing that there is a way--indeed that there are many ways--to move toward educational innovation. There is no community where a teacher cannot be innovative to some degree, and nothing succeeds like success. We need teachers who will find good ideas, use them, and thus make it easier for themselves and their colleagues to move on toward additional innovation. Much has been, and is being, invented in this general area of educational innovation, some by each and every one of you every day and every year in your own classroom, some by research workers in universities and colleges. Education is potentially the richer as a result. But the final and most important step in this innovative process is the implementation of new inventions, and that step is up to you. It's a heavy responsibility, but you should be proud it is yours.

FACTORS RELATED TO ACADEMIC ACHIEVEMENT

Dr. Lawrence H. Stewart
Professor of Education
University of California
Berkeley, California

The ideas I will attempt to develop in this paper are based, in large part, on two sources: first, the theory of achievement motivation and risk-taking behavior advanced by David McClelland (1953) and by John Atkinson and his associates (1958); and, second, research related to social mobility. The ideas have been presented in greater detail in a rationale for improving the achievement striving of disadvantaged youth which was prepared by Moulton and Stewart (1962). This rationale has been revised and included in a publication by Stewart and Warnath (1965).

Individuals achieve for a wide variety of reasons. They may strive to obtain extrinsic rewards such as money or special privileges; or, to satisfy certain intrinsic motives or psychological needs. The focus of this paper will be on one of these intrinsic needs, the achievement motive, and on variables which either facilitate or hinder the expression of this motive through overt achievement striving. I recognize that the specific problem of low academic performance can be conceptualized from many points of view. The focus on the achievement motive will serve as an illustration of how one can generate from research and theory, hypotheses for further research and ideas for the development of ameliorative programs.

Three types of behavior have been used to define the achievement motive. They are:

1) competition with abstract standards of excellence

2) unique accomplishment

3) long-term involvement

The achievement motive is thought to be learned in early childhood; developed out of the procedures used by parents to make independence demands on their children. In order for the motive to develop, parents must expect their children to respond to these independence demands, and must reward successful performance. Furthermore, parents must support each other in their demands on the child. McClelland has argued that these independence demands must be made prior to the age when the child can label the specific demands of him and can pinpoint the behaviors for which he is rewarded.

Inconsistent or dissonant parental demands may effect serious difficulties for the disadvantaged child. Actually, he may be forced out on his own resources at an earlier age than the middle class child--e.g., left to find his way around the city--but without having rewards of punishment for performance explicitly brought into focus. Often many significant adults reside in a low socio-economic status home. In such a home, the child may seek and obtain approbation from a grandparent, uncle or other relative, when parental approval is withheld. Lack of perceived threat to withhold affection from the child would not be expected to result in a high level of achievement motivation.

The full effect of cultural and ethnic differences in child rearing practices on the development of the achievement motive has not been empirically established. However, the possibility that disadvantaged youth may be characterized by a dearth of achievement motivation must be entertained.

Atkinson believes that the achievement motive, once acquired, is fairly resistant to modification. Earlier McClelland agreed with this position. At the present time however, McClelland (1965) believes that he can teach the motive to adults in developing countries. Kolb (1965) has completed similar studies with American youth. Unfortunately, his results seem to indicate that middle class subjects receive the greatest benefit from experimental procedures.

At this time, evidence related to the stability of the achievement motive is not conclusive. Let us assume, however, that Atkinson is correct in his belief that the level of motivation is not easily modified. Then, what is the appropriate line of action for educators concerned with improving the acedemic accomplishments of the disadvantaged?

If the achievement motive is extremely low, one could turn to other motives or behaviors. From my observations of ghetto classrooms, one of the most noticeable characteristics of the students is the high degree of competiveness. Whether or not they know the answers, pupils insist on answering every question. Failure to be called on frequently results in overtly aggressive outbursts. Large numbers of teachers attempt to reduce or eliminate altogether this competitiveness; others to channel it into academic activities with good effects. As an example of using competitiveness to further educational objectives, an elementary teacher was observed sending students to the board to compete with one another in doing multiplication problems. The first student who obtained the correct answer added a point to his score. Clearly the advantage lay with the student who had mastered the multiplication tables.

For many, or maybe most youth, there exists a higher level of the achievement motivation than that being channeled into academic pursuits. The relationships between level of the achievement motive and various criteria of academic achievement has been found to be rather low. Perhaps the most meaningful strategy for use with these youth would be to focus on variables which impede or facilitate the expression of the existing level of motivation in overt academic striving instead of attempting to raise the level of achievement motivation itself. A number of such variables, which educators may be able to manipulate, will be considered in the remainder of this paper.

Achievement Values.

Achievement motivation may be apparent in any sector of ones life: there is no necessary reason why it should be restricted to the academic area. The sector in which it finds expression depends to some extent on one's value orientation. Three orientations which appear to be related to academic achievement have been identified by Strodtbeck (1958) and Rosen (1956). They are:

1) Time orientation - whether one views his environment primarily in terms of the past, present, or future. A future orientation appears to be most conducive to achievement.
2) Family orientation - whether there is a determination to remain within the family constellation regardless of the consequences; or, a recognition that leaving the family may be necessary to achieve some goals. Strodtbeck found that subjects from Jewish and Southern Italian ancestry, groups differing widely in achievement striving, differed also in family orientation.

3) Orientation toward responsibility for one's own fate, a belief that effort will make a difference in one's life or that fate or societal conditions will determine the outcomes, should be related to whether or not an individual will strive to better his situation. It is difficult to see how a Negro boy who believes job opportunities would be restricted for him regardless of how well he did in school, can strive for academic excellence.

It is believed that achievement values can be taught. Unfortunately, present research results provide little indication of appropriate procedures for teaching them. Perhaps one means of dealing with the self-responsibility orientation would be to help youth analyze the possible consequences issuing from any single decision. Recently teachers in one ghetto school approached this problem through the development of reading materials. Stories available to the pupils ended happily regardless of decisions made by the principal characters. The teachers decided to stop the printed stories at the decision point and to ask the pupils to form their own endings. The endings would form the basis for group discussions. This procedure, though simple in conceptualization, appears to be a creative and potentially useful approach to teaching an achievement value.

Subjective Probability of Success

According to a model of risk-taking behavior developed by Atkinson (1957), an individual tends to compete in tasks when the subjective probability of a successful performance is .50. If the subjective probability deviates in either direction, the likelihood of choosing a given task will tend to decrease. The subjective probability of success is not necessarily related to reality.

Atkinson's model appears to have a good deal of relevance for work with disadvantaged youth. Consider the boy who has never known or felt allied with a male who has reaped success through education. A boy of this type may have decided that it would be extremely unlikely for him to reach his life goals through education. Therefore, in accordance with the model, he would not compete in educational tasks, whatever his level of achievement motivation.

The disadvantaged youngster's low evaluation of his chances for success in school may be reinforced by many aspects of the educational institution. For instance, most elementary school teachers are women. The significant absence of a male prototype may confirm the disadvantaged boy's impression that men cannot do well in school -- that striving to achieve is a feminine activity. Moreover, teachers may inadvertently reinforce negative perceptions about ability to compete in educational activities. Recently, a teacher in a ghetto classroom was observed to begin a unit with this statement: "I am going to present this material, but I know you will not understand it." She meant to say that the material was difficult and would be reviewed several times. The statement, however, conveyed an entirely different message to members of the class.

Much can be done to help all young people form a more mature, realistic evaluation of their academic potential. Attempts on the part of the counselor to provide information about job requirements and the abilities necessary to perform certain academic tasks and to provide objective data about individual aptitudes, may help change inaccurate subjective probabilities of success. Also, the counselor may be able to modify the probability of success estimates of the disadvantaged youngster by pointing out recent changes in employment practices and opportunities.

The classroom teacher should be able to manipulate the classroom situation to provide opportunities for each child to experience some sort of success. She can be the source of rewards and encouragement for successful academic performance.

The probability of success variable should be given careful consideration in all aspects of the school program. This variable is important for all youngsters, but it is particularly crucial for the disadvantaged ones. Middle class youth have already received a great deal of reinforcement of achievement behaviors from home. If the disadvantaged are not convinced that their efforts in school will make a difference to their adult lives; large numbers of them will persist in excluding the school from the scope of their competitive activities.

Fear of Failure

Not all individuals choose tasks in which they have a .50 subjective probability of success. Individuals for whom the fear of failure is proportionately higher than the achievement motive will attempt to completely avoid achievement situations altogether. If they are forced to remain in these circumstances, they will tend to choose tasks which are either impossibly difficult or absurdly easy.

A classic example of the high fear of failure is provided by the case of a divorcee in her early 30's. She was the mother of two small children, and her only means of support was her own salary. She had a good job which she left to return to college -- her goal to become a lawyer. She probably has sufficient academic ability to reach this goal, but her previous academic record is not as reassuring. In junior college she completed work on courses in which she was making low or failing grades. She typically avoided taking final examinations in courses where her performance was of an A or B caliber. She would appear to avoid any activity in which she succeeds.

I do not have any suggestions -- short of intensive psychotherapy -- about how to help such an individual. Nevertheless, school personnel should be aware of the existence of this type of individual; and should understand that typical efforts at encouragement may have adverse effects on them.

Role Models

Many characteristics which describe achievement striving can be learned by patterning one's behavior after role models. A theory of identification developed by Whiting (1960) provides a good basis for considering the significance of modeling behavior, especially for disadvantaged youth.

Whiting assumes that the child will identify with anyone whom he sees as a controller of resources. Resources are defined as anything which the individual values; e.g. food, air, freedom from pain, and important derived resources such as love and praise. The withholding of, or threat to withhold, any resource is considered to be motivating.

Whiting's hypothesis is that the more a person envies the status of another, the more he will covertly (through fantasy activity) practice the other's role. The overt role performance by a child will depend upon three factors: 1) the clarity of his cognizance of the role; 2) the degree to which he has covertly practiced it; and 3) the occurrence of a situation which is, to some degree at least, appropriate for its performance.

Status envy may lead to conflict in roles. If, for example, a mother has had control of the values resources for a boy, the boy will envy her status and strive to perform her role. Consider the problems this would pose for a Negro boy from the typical lower class Negro family in which the father is seen as irresponsible and the mother or the grandmother represents the only available model personifying self-control and willingness to sacrifice for later gain. Upward social mobility of a family is usually achieved through improvement in the competitive position of males. It falls upon the Negro mother, then, to train her son in behaviors characterizing the achievement model, and she lacks the extremely important advantage of being able to point to a visible and prestigeful achieving model directly within the child's awareness. The fact that the mother and not the father personifies the achievement model may lead the male child to identify strongly with her. However, this identification cannot be a comfortable one because other forces in the child's environment push him in the direction of a masculine identity. The resultant conflict may lead to an over-emphasis on obviously "masculine" characteristics and a defensive avoidance of any behavior considered "feminine." Thus, he may perceive achievement related characteristics as feminine and avoid such behavior, at least on an overt level, because he lacks a masculine model who possesses these characteristics. Again, the problem may be compounded by the fact that almost all of the child's early teachers are female.

The feminine identity phenomenon experienced by lower status youth may lead to the accumulation of behaviors that are misinterpreted by school personnel and by peers. For example, teachers in ghetto schools frequently complain that parents are not interested in how their children are getting along in school. Something else is indicated by observation of these school situations. The children come to school immaculately dressed; perhaps hungry but definitely clean. Many of their mothers who work in middle class homes, may be abstracting a distorted impression of success requirements. They may believe that their contribution to the learning process involves keeping their child clean and well dressed. After that they (the parents) feel they have done their part; the rest is up to the school.

Further implications stem from Whiting's distinction between covert and overt practice of a role. It is possible that some children have covertly identified with a role model personifying achievement related characteristics. Practice of the achievement role might remain covert because overt practice of the achievement-oriented role has never been rewarded or because achievement behaviors are incompatible with other aspects of the self-concept. This hypothetical group of children, who might be categorized as "latent" achievers, may respond with overt achievement strivings if relevant rewards are provided.

Maccoby (1959) pointed out that covert practice may be effective only with certain types of behaviors such as attitudes and values. It is not likely to be effective in the development of skills because such skills require feedback (overt learning) which can only be derived through overt practice. Consequently when strivings do emerge, they may be awkward or inappropriate; thus leading to censure from peers or from powerful adults such as the classroom teacher. Censure of that kind is likely to discourage further overt practice.

Meaningful role models must be provided by the school for all youth, and especially for disadvantaged boys. "Masculine" male teachers, teacher aides and playground assistants should be placed in the primary grades. Such models could do much to convince these boys that academic achievement is not limited to the females. Some thought should be given to the use of "negative" models; i.e., models who possess attitudes and represent achieved status positions which many disadvantaged feel to be stumbling blocks. An example of a negative model would be a male Negro who has come from a ghetto background and who has achieved success through education. The successful use of negative models is clearly illustrated by Alcoholics Anonymous. Their procedure depends in large measure on the use of models who demonstrate daily that the addiction to alcohol can be controlled. The use of tutors is widespread, especially in programs supported by funds provided by the Elementary and Secondary Education Act. Job Corps centers are experimenting with using Corpsmen as dormitory counselors and group leaders.

Coping with Feelings of Hostility

Every member of society must learn to manage and control his aggressive impulses in accordance with the demands and expectations of that society. A number of strategies can be developed for coping with these impulses. For example, one might compete with the perceived object of frustration. Assuming there is adequate ability, competition of this sort would be expected to lead to a relatively high achievement level, if it is not carried to extremes or to anti-social activity. On the other hand, an individual may learn to handle his aggressive feelings in self-defeating ways. He may, for instance, turn them against himself. Much has been written about the low level of American Negro self-esteem. There is some intriguing research by Katz and his colleagues (1964), which indicates that the test scores of Negroes tend to decrease when they believe their scores will be compared to those of white subjects. Furthermore, it has occasionally been noted that disadvantaged youth will refuse to perform well on tests. This behavior may effectively frustrate the teacher who cannot retaliate with physical punishment. But the consequences of such behavior can be disastrous for the student because the teacher has little recourse except to consider these students as "dumb." Many such youngsters are taught to strike out at real or imagined frustrations. One Negro junior high school boy put it this way: "When teachers say something smart to me, I say something smart back to them."

Disadvantaged youth need to be made more aware of the consequences which may result from whatever strategy (or strategies) they have developed to express their anger. Frequently they need a great deal of help in developing more appropriate strategies. If they do not receive such help, they may continue to find themselves in trouble with school authorities, the "gatekeepers" to their future.

There are a number of other variables such as peer group influence and parental reinforcement which could be discussed. Negro junior high school boys tell us, for example, that they do not dare take their books home with them for fear their friends will "jack" them up. Hopefully a sufficient number of variables have been presented to illustrate the desirability of turning to theory and research for ideas relative to academic motivation, and the need to constantly evaluate practices in the light of such theory and research.

My colleagues and I at the University of California are carrying out a number of projects in which we are attempting to teach groups of disadvantaged youth the strategies necessary to achieve success in academic institutions. We are focusing on variables such as those described in this paper. So far, we have dealt with Negro boys of junior high school age. At this time we are initiating studies involving youngsters of Mexican-American ancestry. We are also working with elementary teachers from ghetto schools in an attempt to sensitize them to variables discussed in this paper and to explore methods of applying the variables to the classroom situation.

The findings of our studies will not be available for some time. Our experience to this point has convinced us, however, that we are dealing with significant variables. Furthermore, we have discovered that introjecting these variables into several aspects of the educational program has helped teachers and counselors develop meaningful dialogue with the disadvantaged.

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CHANGE AND THE ELEMENTARY AND SECONDARY EDUCATION ACT

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Change, innovation, and the research that supports them are the most popular subjects of education. To be conversant about change and innovation makes one contemporary, progressive, and "in." To be a practitioner of change is avant-garde. Locally, regionally, and nationally the focus is on change. It is appropriate, then, that this institute which is a product of a new laboratory, sponsored by new funds, under new legislation should concern itself with change. Previous speakers at this institute have rifled-in on pertinent topics. As your "clean up" speaker, I shall use a shotgun approach to the topic of change.

To review and summarize, a survey of the literature reveals the following about change:

1. Change has been a function of all societies in all ages.
2. Change will occur. The question is, will it be planned change, or will it be happenstance?
3. Change in the present society is characterized by its ever increasing acceleration.
4. It has been said that there is nothing sacrosanct about change, yet studies on change reflect the fact that change is and of itself can produce desirable behavioral results. This is especially true when the persons or constituents on whom the change is directed recognize that they are the object of care, consideration and interest.

5. It is imperative that teachers try not to be change agents but good teachers. This will involve change.
6. Acceptance of the principles of change requires a total or comprehensive educational core within and without the school.
7. Not all change will result in continual revising of the curriculum and other school practices. Some will be for reinforcement of existing practices.
8. Change may be viewed as withdrawal from present practices, a modification of present practice or a reinforcement of present practice.
9. An attitude of support is necessary if old ideas are to be replaced by new.
10. Education is inextricably inter-related with the social trends of our society. The changes of one must affect the other.
11. Studies by Brickell and others by Carson, Goldhammer and Pellegrin suggest that teachers are not major sources of innovation.
12. Pressures for conformity, uniformity, standardization and routine rather than novelty, initiative, ingenuity or change are repeated in the classroom situation.
13. In contrast with most of the other existing professions, school teachers are quite unique in that they seldom share their methods and innovations with other teachers, principals, supervisors, superintendents or parents.
14. Of all the individuals, agencies and organizations involved in the educational scheme, the superintendents are considered to

be the most significant individuals in the perpetuation of the status quo or in effecting organizational change.

15. Only a small percentage of the lay community is pro education. Then, only a small percentage highly interested in education favor a consistent policy of educational innovation. The federal government and industries are currently recognized as the more powerful sources of educational change.
16. The person interested in educational change has to be seriously involved with two questions: the "isness" of a situation and the "oughtness." Thus, he stands at a gulf between the real and the ideal. Any societal change involves the principle of counterveillance. This indicates that for every action created there are opposite reactions by vested interests in the community that are reluctant, in fact, who would oppose the recommended changes.

Change is a function of wisdom and courage. If you're going to have change, you can't simply say nice things. The innovator is not particularly viewed as a public relations man. It requires analytical and critical thinking. There must be provision for personal and organizational criticism. The uncomfortable questions need provision, and you will need the freedom to express them. To be creative or innovative one must be an authentic self, and to be a real or authentic self requires a cost or a sacrifice--sacrifice with a society, or at least, with a sphere of influence that may not be appreciative or accepting of that self, and I submit to you that a life of faith--you can define your own terms here--a life of faith is one which is most conducive to innovation or creativity.

Conversely, fear and apprehension may not be able to produce the attitude or freedom which is necessary for the creative mind. To do something new, to do it better, to do it different, is the human mind at its best. It is second only to the God role, that of making something new out of nothing.

Change begins with values, commitments, and attitudes. The complacency and conformity with which society is indicted is antithetical to change. The kinds of people who instigate change have a solid share of insight, quest for the unknown and leadership. They are apt to lose themselves in their ideas, to pursue an idea wherever it may lead, to risk the different thought, to venture independent judgement, to develop practical expressions of their unusual fantasies, to explore and analyze before making commitments, and to accept the best suggestions for modification regardless of the source status. The innovator is gifted with initiative. He is unwilling to say that change starts in the neighboring school, district, or state. He says, change starts with me; change starts where we are. There are some change concepts to question, if not completely reject. You will be bombarded with a lot of ideas on change in the years to come, and the following include some to question, if not reject. For each of these ten questionable concepts, I have just a few rejoinders. Innovations originating in the federal program spell control. To begin with, federal funds are not foreign. They come from you, they come from me, they are our own. The federal organization is simply another level of government. It relates to the state as the state relates to the county, or the county relates to the municipal. The basis of all public schooling is found in federal land grants. It was federal funds that began our public schools in this country. There is no value in change for change's sake.

I question this. Change requires freedom. Freedom without constructive change produces license and/or stagnation. Stagnation results in decline and, ultimately, slavery. The concomitant of change brings attention, interest, hope, activity, and encouragement for improvement. Even in situations where schools have swapped programs, one with another, not particularly good programs, they just changed, both have improved just because of change. We find that in counseling environments, if a client or a student knows that you care, that you love him, that you feel for him, if you're willing to listen and empathize with him, this, in and of itself can produce change in his behavior. Teachers are primary change agents. We've discussed this before. A complete program of change from Alpha to Omega is vital when you begin a new program. Some people say, "You must have the whole package; you must have the whole panoramic scene from one end of the horizon to the other." I submit to you that this needs to be questioned. The Chinese proverb, "The longest journey starts with the first step," is appropriate here. Sometimes a comprehensive plan may discourage, buffalo, or make a program seem unreasonable to the constituents. They may not be able to swallow the whole package at once. Another point on this is that progress toward that ultimate goal changes it. You may not be able to provide a whole package. In fact, the farther you go into the future, the more tentative you ought to be. Further phasing programs provide for evaluation and self-correction in the process. Change requires huge foundation or federal grants. Some say an innovation can not be implemented unless you have a lot of money. Yet change is primarily a function of attitude, knowledge, and creativity. While funds may be way up ahead of whatever is in second place, good teachers, administrators, and assistants can improve upon their situation by concerted brainstorming effort and application. The "no money" reaction may be a defense or rationalization for complacency, laziness, or inability. The innovator is one who researches, develops, demonstrates, and disseminates an idea. Too often we take refuge in a psuedo poverty plight. All change is desirable. If you have a control group and an experimental group, look what happens. If an innovation is good, the control group is cheated. If the innovation is bad, the pilot group is cheated. You're condemned if you do and condemned if you don't. Change may be evaluated by extrinsic criteria. Have you noticed how some pilot programs are evaluated? If you have an innovator who is prestigious, it is accepted. If he is just an unprestigious individual, he suffers untold risk. One must ask about the publicity involved with it, the media and the professional journals supporting it, and who published it? It makes a difference. Another extrinsic is the promise of funds. Who is going to support it--the Ford Foundation, Carnegie, Lilly, Kresge? Finally, the word that we continually use, the excitement potential. Is it exciting? Well, all these things are related, but they are not of the essence. The essence is, what does it do for the individual student? My innovations have real merit. The praise of an innovator for his own change action is something that ought to be questioned. If one blows his horn for the things that he is doing in his brainstorm, baby, or program, one had better be suspicious. Skepticism is realistic for even in the best and latest ideas there are untold problems and questions. Get the innovator off the platform into a relaxed situation and you may get the truth from him. Contentment, enthusiasm and smiles assure innovative success. Many new programs and facilities bring sincere satisfaction, personal exhilaration, and happiness but one may have sincere but misplaced feelings . . . they may be sincerely wrong. While these characteristics of a new situation ought not to be ignored, they should not be confused with more critical results.

Let us move now to some relationships that characterize the dynamic features of an innovative situation being cautious of the dangers inherent in the stereotypes and generalizations.

Change and the Administrative Psyche

What kind of person is the administrator? A profile finds him realistic, likeable, gregarious, frank, vocal, concerned about the total picture, interested in balance and harmony, desirous of "feathers for his cap," ambitious and purposeful. He may or may not be in control of his superiors or board. If he is in control, he does as he sees best; if he is not in control, he conforms to the superior or board's wishes. Change is a function of the controlling agent or agency. Ordinarily, it is some of both. The administrator can not tolerate too much deviation from controlling societal norms.

Change is the vogue today. Alert administrators give, at least, lip service to it. But administrators may be wary of change. It represents uncertainty, lack of control, instability, and a threat to continuity and good public relations. For administrators to accept and endorse change they need to have reasonable assurance of the proposition's need; desirability; success; acceptance by students, teachers and community; financial feasibility; lack of interference with other parts of the curriculum, and proof of its enhancement for the school or district if not him, personally.

Change and the Mentality of the Innovative Teacher

By definition, "Innovative" will mean change beyond the teacher's classroom. The average teacher is content to do her job, do it well, experiment a bit with his class but no more. The innovative teacher has broader horizons, social interests, and future concerns. He is willing to ask hard and disturbing questions and press for answers. His goals and methods may be subject to question by his colleagues and superiors. He may be viewed as a deviant, certainly as an individualist.

The "idea" has intrinsic value for the innovator. He pursues it with youthful idealism. For him the idea is an ever present, consuming fascination. As a young man is captivated by his love or the scholar with his thesis, even so the innovator is enamored by the "idea."

Because of the intensity of his focus on the "idea," the innovator may not bring proper perspective to the "idea." To the administrator and others he may appear to be unrealistic, dreamy, blue skying, and theoretical. In turn, he may see the administrator as one who caters to his publics, concerns himself more with the dollar than the student, and protects himself with programmatic superficialities rather than education in depth.

Interaction Between the Innovative Teacher and Administration

A major question arises: what must the innovative teacher do to gain acceptance, endorsement, and support from the administrator for the "idea"? To begin with, maybe the teacher is the one to get the support.

If the teacher can not do it, maybe he needs an agent to work in his behalf with the administrator. Maybe the administrator looks on the teacher as a deviant, a person with unusual ideas. Maybe he doesn't quite accept the teacher, so he needs someone else to do the job . . . an implementer, a change agent 007, or other person, may have to bridge the gulf between the innovator and the administrator.

The teacher may need to obtain peripheral support for multiple entry for his idea. Within the school, other teachers might say, "Yes, that's a good idea;" or, out of the school the PTA, a member of the school board, a friend of the administrator and others may lend support. Now, this may sound spurious, peripheral, and going around the back door, but maybe these are the kinds of support that a good idea needs just to get a start. This external support for the idea provides perspective and visibility for the administrator which is essential to his security so that he doesn't have to go out on a limb to support an unknown, untried, unproven idea. Now, support for your idea can be active or passive. If a group agrees not to oppose it, it can be helpful. All that you need in certain circumstances, Dr. Kenneth Hanson would say, would be consent, not necessarily commitment. Everybody isn't going to get on your idea bandwagon; in fact, there's a principle that one had better keep in mind--it's the principle of counterveillance. It's a sociological theorem that contends: for every social action that takes place, there is an opposite social reaction. If you want to introduce a new kind of reading program in a school, there will be those that will oppose it. One can expect it and you should expect it, so don't be discouraged when pressures and criticisms arise to an innovation. They are bound to come. One should have his rationale prepared to answer them. Now, in terms of this interaction between the teacher and the administrator, one may want to ask for a pilot program reflecting the intrinsic worth of the need to be developed for evidence. Then, one should submit some cost analyses. Administrators are concerned about practical things, including relationships to other programs already in existence. Then one should take a look at the school objectives to find out how this program will relate to what you're trying to do through the school. If the idea does not relate, it is no good. Finally, support of key power figures may turn the tide, and one might note that this sounds like "politics" and perhaps it is. One may want to secure editorial influence that can persuade the masses directly. Ultimately, the school board and the PTA will convince the administrator.

The complexities of conceptualizing and implementing an educational idea is reminiscent of the physician who told a little boy during a medical examination to strip to the waist and he would come back and examine him. When he came back, he found the little boy naked. He said, "I thought I told you to strip to the waist." The little boy said, "Yes, but you didn't say from which end!" Sometimes when one starts an innovation he really doesn't know from which end to begin. Well, it should be submitted that the action of the innovator is best described in this sequence--philosophical: to know why one wants to do what he wants to do. Then, strategical: the "how" of the plan. Sometimes this is where educators fall down the most. Then, political: (that "dirty" word) the peripheral extrinsic necessities prior to implementation. And, practical: installation of the idea. Those four, in that order, are essential if an innovator wants to see his idea implemented.

Another pellet in this shotgun approach represents the spirit in which we have approached this innovative conference. It was thought, if one goes to this conference, he should try something new himself; but what can you do with a group like this that will be new. You are experienced teachers. After some thought about little things, and this may or may not be new, a little process was developed called "Teach-Think." It is used only for illustrative purposes. One might feel apologetic about a simple, concise experiment of an idea like this. The idea of illustration was prompted by the searching question found in St. Paul's letter to the Romans 2:21, "Thou, therefore, which teachest another, teachest thou not thyself?" One should ask himself the question, isn't it incumbent upon a teacher who is trying to teach innovation, creativity, and application of research practices, to try to employ some of these himself? It is within this frame of reference that I give you this idea of "Teach-Think" this morning for what it's worth.

TEACH-THINK

(An Innovative Instrument to Illustrate Change Potential)

The purpose of Teach-Think is to induce analytical and critical thinking. The Teach-Think method is most appropriate for better than average and gifted youth, college students, and able or highly motivated adults. To employ this technique among dull or uninterested people would be anesthetic and confusing. It would be used as a supplementary method of instruction on a receptive and select audience which had been given appropriate notice. Teacher purposes for the student in the Teach-Think method are to tease his imagination, creativity, questions, and attitude of wonder. The student must ask himself questions continually: is it really true, is it valid, can it be proven, what are the sources of information.

The teacher employs the Teach-Think method by introducing in the substance of his lecture or discussion statements which are partially true or some which are completely false yet plausible. In the process of doing so, students receive erroneous as well as factual information which they must screen and sort out. This, after all, is what the learning process is all about. Before any knowledge can be absorbed, utilized, and incorporated within the body of knowledge held by an individual, he must make meaningful and applicable that which he has learned.

The Teach-Think method is founded on certain basic assumptions.

1. Analytical and critical thinking are desirable among all people.
2. Teachers, wittingly or otherwise, give partially true and erroneous information and opinion based upon incorrect understanding and personal prejudice during the regular course of their instruction.
3. Students can discern and discriminate between that which is true, that which is partially true, and that which is false.
4. The exercise of the faculty of analytical and critical thinking will produce people who are more mature, realistic and rational.

5. If an intelligent or highly motivated person recognizes that there is an inconsistency or error in information in which he is interested, he will take the initiative to discover wherein that information is inaccurate.

(The lecture included a demonstration of "Teach-Think" which is not incorporated in this paper.)

Much of the emphasis and impetus to the urgency for and frequency of change and innovation has stemmed from the Elementary and Secondary Education Act of 1965. One might ask, why did the federal government establish and pass this massive legislative landmark? By itself it was a momentous innovation in our historic tradition of education. It is believed that the federal government recognizes some glaring gaps in our sovereign state educational programs and provided the categorical assistance to help fill the vacuums. As the National Defense Education Act of 1958 exhibited a reaction to a feeling of national self-inadequacy in education, so the 1965 act represents a national concern for the development of our human resources through education.

Just as the act represented a general innovation, the five titles demonstrate newness in particular. Title I expresses a concern for children who come from a deprived economic background. The title helps to provide an economic base or welfare relationship for school children. We said through this legislation that no youngster should lack reason for attending school because of poverty. While this ideal has been bedrock in the American tradition, this title is a first in terms of national implementation.

Title II provides federal assistance for school libraries. The core of schools and colleges has been the library. Next in importance to good teachers, the library becomes the single-most important part of the school. But libraries have evolved to more than repositories of books and places of silence in the past two decades. They are the learning centers of the schools, replete with edics (a neologism for: electronic applications for education). The provisions of this title contribute, then, to learning center innovativeness.

Supplementary educational centers result from approved applications of Title III. New in program concept and authorization directly from the U.S.O.E., this title makes possible the exploration of the reasonable hunch, the untested idea, or the lacking service on a district level.

American industry is differentiated by its high volume of research and development. By contrast, it has been conspicuously low in education. Title IV is designed to support worthwhile educational research. Thus far, the most dramatic aspect of the title has been the creation of the regional research laboratories. In fact, these have become a new kind of educational institution composed of laymen and three levels of education: the schools, state departments of education, and higher education. These laboratories are organized on a regional or multi-state basis but work with individual schools or districts. The political, organizational, financial, and educational risks of this venture have been high but there could be a commensurate payoff!

Federal and urban government systems have experienced great growth and sophistication. State systems have stagnated by contrast. By constitutional design, education is a function of the state but state departments of education historically have been weak, ineffectual organizations. Recognizing the need for increased state leadership, Title V was executed to strengthen state departments of education. A great deal of liberty is allowed the states to determine how they will strengthen themselves. Federal feedback indicates that some of this money could be devoted to more worthy purposes by the states. Fifteen percent of the monies of Title V are designated for experimental, regional projects. Arizona is participating with seven other Rocky Mountain States in a promising project entitled, Designing Education for the Future. This title is an innovative exercise in state leadership as the federal government returns to the state money for self-realization.

These titles denote an example of innovation at the federal level designed to inspire change in the regional, state, districts, and individual schools. Let changes start with me and you, right where we are.

USES OF PROGRAMMED MATERIALS
IN THE CLASSROOM

Dr. Robert K. Branson
Litton Instructional Materials, Inc.

Introduction

The theme of this conference, "Fostering and Reinforcing Innovative Behavior," deserves special acclaim. Certainly innovation does not refer simply to doing better what is already being done. It implies looking for new ways to do things and trying things that have not been tried before.

The purpose of this talk is to present some ideas on instructional methodology which are intended to stimulate questions, objections, and critical examination of current practice. The central theme may be summarized simply by saying that instruction must be judged on its measured accomplishments rather than on its methodology and ritual.

Programmed learning has been chosen as a vehicle to illustrate the three central requirements of instruction:

- objectives that are observable and measurable
- lessons that are designed to accomplish those objectives
- evaluation to determine whether the objectives were accomplished.

Innovation in education does not mean that everything worthwhile from the past must be ignored. On the contrary, a conceptual reorganization of instruction or a change in administrative theory, both using the same equipment, materials, and schools, could well yield the most unique change in educational practice in history.

It is possible to innovate within the current school framework. Examples of this will be given later. But first, the most essential part of any endeavor is the planning that must take place in advance. Planning--the careful development of objectives and a procedure for accomplishing them--may be the most difficult step that one can take, because once the plan is made, the steps which follow are much more readily understood.

Establishing Objectives

One of the more critical needs is for clearly stated instructional objectives on which agreement can be reached within schools, districts, and, ultimately state levels.

If agreement can be achieved on objectives for "minimum acceptable performance" in each subject taught, a truly innovative step will have been taken, because this kind of planning has not been previously done.

The critical words here are "behaviorally stated" objectives, in which a description of the expected student behavior is written in advance.

For example: "The student will, at the end of this sequence of instruction, compute or derive the formula for. . . ."

"The student will explain in a hundred words or less the probable causes of the Civil War."

"The student will describe; the student will perform; the student will write; he will list; he will hook up, using the safety procedures described," and so on.

These are descriptive behavioral objectives. A reference which has become a standard on objectives, though it has now been surpassed in some areas, is Mager's Preparing Instructional Objectives, published by Fearon in Palo Alto. This programmed book explains how to write behaviorally stated objectives.

Historically, the writing of objectives in school has centered around a description of what the teacher was going to "present." Notice the important difference here. Teachers writing course plans should not say: "I am going to lecture about frogs; I am going to cover fish; I am going to explain existentialism," etc. They should describe what the students will be able to do after they have been instructed. The expected performance should be explained in behavioral terms.

The importance of behavioral terms cannot be overemphasized, because once the expected behavior can be described, then the student can be carefully tested and the instructor can judge whether expectations were met. Then, reliability of evaluation is possible. Instructors can jointly determine that a given student has, in fact, reached minimum acceptable performance.

More importantly, the development of objectives provides a clear plan on where instruction is to lead. These goals are important because if one examines the way the change has been wrought in other social institutions, one finds that people who have successfully effected changes have been able to convince others of the importance of achieving specifically-stated goals.

If teachers have set for themselves the objective of having students in a classroom be able to do highly specific things, then the work is laid out. There is no need to argue about the ". . .true purpose of education." or whether anyone's "spirit" is being liberated. The teacher can say:

"_If_ I can teach all students to do Math, _if_ I can teach them to read, _if_ I can teach them science, _if_ I can teach them citizenship, their "spirits" will be free because they're going to have the fundamental skills and the knowledge and the ability to attack problems that are real."

The student will be able to use his knowledge, his tools, his experience, his information. If a teacher starts with a poorly formulated, unmeasurable objective, no one will know if or when he achieves it. Writing objectives and working toward the accomplishment of them can be one of the most rewarding experiences instructors will ever have. It's exhilarating if one is achievement-oriented, to be able to look back and see exactly what he accomplished with his effort. It is this word "accomplishment" that is important, because most people are willing to put up the effort. But, it isn't really the effort that counts. The man who works successfully for six hours is much more handsomely rewarded than the man who works fourteen hours and fails.

Notice that in the non-education world, people are rewarded for accomplishment, not for effort. If instructors can orient themselves toward the development and agreement on significant objectives, and then evaluate themselves on their accomplishment of those objectives, they have taken a dramatic step forward.

The precision and specificity of planning strengthen the bargaining position; the teacher can then say to the principal, superintendent, president, or whomever it happens to be, "that is what I did; this is what I accomplished; and there is where I want to go."

People will not be refused who have a clear mission and a plan for accomplishment. This doesn't mean that teachers should deceive themselves about how near the goal is. It should mean that the goal is understood and that it is possible to determine when the goal is reached.

Programmed Materials

While there is a continuing need to improve the ability to write clear objectives, there is also a corresponding need to achieve those objectives as written. It is in the accomplishment of specific curriculum objectives that programmed materials make their greatest contribution.

Programmed materials are unique tools for accomplishing a special job. When a programmer begins a program, he must first be concerned with the value of the selected material to the overall curriculum. Then, he must itemize the detailed expected behaviors to be produced by the program. Approval of this expected behavior by subject matter specialists is his signal to plan the program.

He must arrange the subject matter into a rational sequence which will hopefully lead the student to the expected goals. He then writes the material to produce the number of student responses required to achieve good results. Sometimes he uses "frames" to display the material. A "frame" is a question or problem with the required answer obscured so that the student must respond before he sees the expected answer. See Figure 1.

Other times, the programmer displays his material in standard text or artistic format, relegating the questions to a separate sheet. See Figure 2. It is essential to note that the outcome of the program is the critical element, not the method of presentation.

If you have followed the literature in programmed instruction, you have probably encountered the great "linear-branching" controversy raging in 1960-1962. Since then, most mature programmers have concerned themselves with producing the desired behavior, regardless of the format employed. Material, to be called "programmed" must have at least these characteristics:

--behaviorally stated objectives

--student responses called for throughout the program

--an efficient means to inform the student what the model or expected response is

--an initial version of the program to be tried out on a number of students and tested to see if it works

--a revision of the initial version following testing to incorporate changes indicated by the testing procedure

There are many other desirable features of programs, but these features are critical for the material to be properly labelled as "programmed."

<table>
<tr><td colspan="2">Behavioral objectives are unique in that they describe the ________________ and ________ behavior of the student</td></tr>
<tr><td>Observable
Measurable
(either order)</td><td>1. ________________
2. ________________</td></tr>
</table>

Figure 1. Completion Frame.

In this kind of frame, the student is expected to give his answer to the question before looking at the model or expected answer.

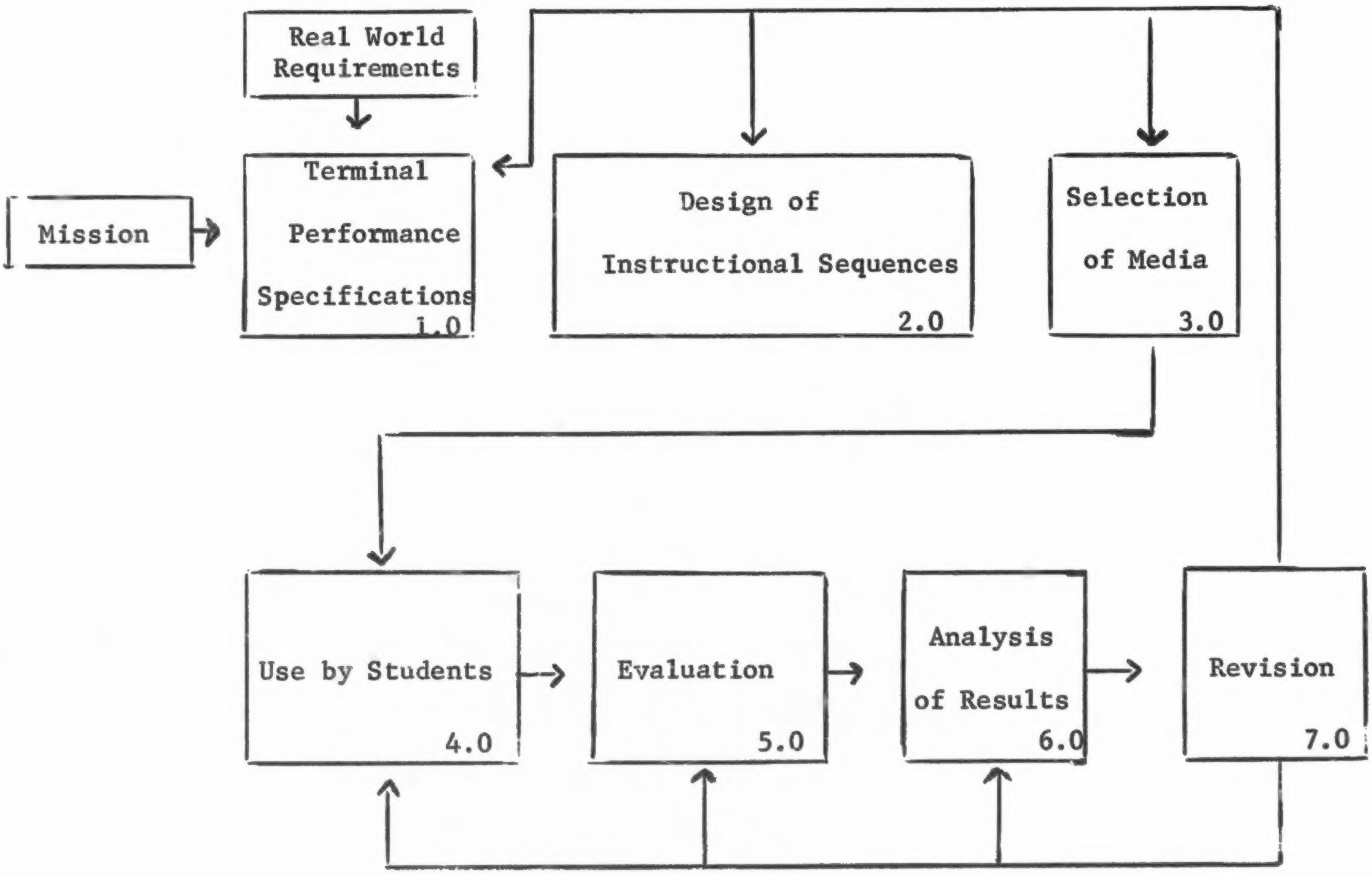
Real World Requirements
Mission
Terminal Performance Specifications 1.0
Design of Instructional Sequences 2.0
Selection of Media 3.0
Use by Students 4.0
Evaluation 5.0
Analysis of Results 6.0
Revision 7.0

Figure 2. The Implementation and Revision Flow for an Instructional System.

Notice that each functional component is revised if the output is not adequate. The output of the student is an integral part of the information flow.

This is an example of an information display in which the student is expected to search out answers to the questions listed on another sheet. The questions may be objective, or they may require interpretative answers.

Questions for Figure 2.

1. In the flow chart, the output of block 3.0 goes to the students. What happens if this output is rejected?
2. What happens to the output of block 6.0? What is the significance of this step?

Research Results

Clearly, at least to the best estimate and evaluation of the present literature, the use of programmed textbooks in classroom situations has been proved to be an effective and worthwhile procedure. Where the research has been conducted, ordinarily, programmed instruction was compared with "conventional" instruction, whatever that was. Conventional may have meant teaching in a classroom, or, it may have been self-study; it may have been lecturing, or some other method.

There have been a number of comparisons both in industry and in schools, to answer the question: "Is a program a more effective teaching device than traditional instruction?" Gilbert (1966) reports that comparative studies between programs and "conventional" instruction have indicated that programs are effective in 90% of the cases. His survey revealed that programs were superior to conventional instruction in 41% of the cases, were equal to conventional in 49% of the cases and were worse than conventional in 10% of the cases.

While there are many possible explanations of the results of any specific study, Gilbert's survey included more than one hundred separate experiments and the results reported here are for all measures taken. Retention and time measures for various classes of program users (schools, colleges, military-industrial) also indicated extremely favorable results for programmed instruction.

One story about early programmed textbook fanatics might well be instructive. It seems that a programmer in quite dramatic tones was explaining to the textbook committee: "Folks, you know that motion pictures were not a panacea and neither were tapes or television, even though in advance of their trial they were highly touted. And honestly, we really don't believe programmed textbooks are a panacea, either."

Having satisfied his conscience that he had given adequate disclaimers and had established the proper caveat emptor attitude, he proceeded enthusiastically, "Now, let me just tell you about this miracle."

Innovating with Programs

Programmed instruction, as no previous teaching device, has earned its place on the basis of research for use in the curriculum as a standard teaching tool. But, programmed instruction is only one method that time has demonstrated to be effective. Many people would say that using programs in classes today could hardly be called "innovation." Nevertheless, many times unique uses of existing techniques can be as innovative as the invention of new techniques.

The use of a program can often help an individual student. Perhaps it is a short program on a specific topic or, perhaps it is a more basic program for several ill-prepared students. Programs are effective; they are most effective when they are used according to their specifications. There are few programmed textbooks designed for remedial use. Although they have not been so designed, they have been widely used as remedial material.

Few programs have been designed for gifted students, but they have been frequently used as enrichment for the gifted student, sometimes with good results. One requirement of programming demands that a program be designed to achieve minimum acceptable performance on a specific topic or subject throughout the range of student ability within a course.

Most programs, whether prepared commercially or by individuals, have typically been designed to accomplish a specific purpose for all students in the class, and they are statistically most successful when they are used this way. They have been used remedially, but they have not been designed for that purpose; they have been used for gifted students, but they have not been designed for that purpose.

They have been very effective in some instances for the student who cannot come to school because of sickness or quarantine, or other reason. The research clearly justifies the use of programmed materials in the classroom for specific reasons and where the program meets the objectives that have been planned for that class. Regardless, if a program doesn't accomplish the planned objectives in a course, there's no point in using it.

A recent innovation in programmed instruction stems not with the use of programs, but with their planned procurement. Up to now, if a program or textbook publisher decided to publish a program or textbook, the schools could take it or leave it. An innovation on the part of the materials suppliers has been to find out what people want and need before publishing the material.

One community college determined its needs for programmed textbooks prior to the time the school actually opened. The college then contracted with two programmed materials producers for custom designed materials to fit into their curricula. The programs requested were short, modular types designed to accomplish the teaching of many specific topics.

Only large schools, universities, or cities by themselves can afford to have all of their materials specially designed to articulate with other internal material in the accomplishment of curriculum objectives. However, smaller districts can afford at least two variations on this approach:

- --join with other similar districts to increase the number of students to be served, thus providing a large enough base to permit the production of special materials
- --select all "off-the-shelf" materials only on their ability to accomplish stated behavioral objectives with the type of students found in the district.

As more and more school districts and colleges design their own special materials, an extremely wide range of materials will become available. Selecting programs and texts from this increased diversity of titles will provide an even greater chance that the materials selected will accomplish exactly what is expected of them.

Summary

If this presentation has accomplished its objectives, you should already have thought of special problems and applications for programmed materials in your classes. Perhaps you have even thought of a particular student on whom you would like to try a program to solve a special problem.

If you have begun to think about objectives for your classes, perhaps if you copied down the name of the program on how to write objectives, or if you have thought about ways to evaluate difficult performance, then it has been worthwhile.

Innovation does not require a complete change in the world, but it does require at least the constant attention and effort that one is willing to give conventional methods. An innovation is more likely to be effective if the objectives of the proposed change are clearly stated in terms which permit careful evaluation. If an innovative practice cannot be observed, measured, and analyzed, then one can never know if it was effective.

Reference

Gilbert, J. E. "Comparative Programmed Instruction Research" NSPI Journal, V, July, 1966; pp. 7-10.

SOME ASPECTS OF RESEARCH AND INNOVATION IN ELEMENTARY AND SECONDARY EDUCATION

By Victor O. Hornbostel
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The educator who dares speak today without referring to "change," "innovation," or "exemplary programs" is out-of-step with the times. I would suggest that much of this activity will go for nought as have so many other one-time popular notions, unless there is included in these concepts some plans for evaluation including some built-in self-correction and self-renewal aspects.

The public schools come face-to-face with this mood of the times in a number of ways, but especially with their projects under Title I and Title III of the Elementary and Secondary Education Act (ESEA) of 1965. Under these titles public schools are invited to present proposals for projects along with plans to evaluate them. With the invitation has come the stark realization that there is a vast gap between what is required and the research and evaluation competence present in most of our schools. The research progress in the colleges and universities has not covered this gap in most sections of the nation. Thus our concern today is with this gap.

In developing this theme let me first focus attention on some of the factors that illustrate why we have come to be concerned at all, and then let me propose some of the steps which I believe are feasible to take in the ordinary school situation.

Why Concern Over Gap?

The main events in this aspect of the educational record occurred relatively recently. The Cooperative Research Act of 1954 was a landmark in stimulating educational research in colleges and universities. Some concern with research and evaluation was also present in the provisions of the National Defense Education Act of 1958. Then The Vocational Education Act in 1963 included the provision that 10 percent of the appropriations could be used for grants to colleges and universities, state boards, and local education agencies to pay part of the cost of research and training programs. And in the last several years we have the Research and Development Centers, the Regional Laboratories and now the public school programs under ESEA. These are all programs stemming from the federal government but there are other interesting and related developments in the United States which contribute to this totality of where we are.

Our Current Situation Previewed. A preview of much that we see on the current research scene was provided in a statement made in 1963 by Clark,[1] one of the first administrators of the Cooperative Research Act. He observed that in fields where research has had a substantial impact on practice these circumstances were present:

1. Extensive support was available for basic research in related disciplines
2. Extensive support was available for basic and applied research in the field itself
3. A system for storage and retrieval of new knowledge existed

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[1] David L. Clark, "Educational Research: A National Perspective." Educational Research: New Perspectives. (Edited by Jack A. Culbertson and Stephen P. Heneley) Danville, Illinois: The Interstate Printers and Publishers, Inc. 1963. pp. 7-17.

4. Adequate training facilities were available to insure a flow of competent investigators

5. The means existed for preparing research findings for field testing

6. An extensive program existed for dissemination to practitioners.

Clark then proposed for the next decade the establishment of institutes of educational research, a national storage and retrieval center for educational information, scholarship and fellowship programs for the development of investigators, and state and regional experimental centers for demonstration and dissemination of research findings. We need only to add that the outlines of many of these suggestions are already clear in some of our very recent developments.

One Approach to Innovation and Research in Schools. For several years now as an activity of its Research and Development Center, the University of Wisconsin has been experimenting with what they have designated as Research and Instruction Units in schools.[2] This creation grew from a need by the school systems, the State Department of Public Instruction, and the R and D Center for a new type of organization to study exemplary instructional systems.

An R and I Unit is headed by a learning specialist who assumes leadership and is accountable to the building principal for the learning efficiency of the students in the Unit and for the coordination of instructional and research activities of the Unit. Other staff members of the Unit are two or more certified teachers, one or more aides, and a part-time secretary. The number of students in a Unit varies according to the number of staff members and is proportioned so that efficient instruction can be carried on in the classroom. The instructional schedule allows the learning specialist to work directly with the students for half his time and to be available for consultation or planning sessions for the remainder.

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[2] Herbert J. Klansmeier, "Project Models: Its Inception and Rationale." Project Models: Maximizing Opportunities for Development and Experimentation in Learning in the Schools. Research and Development Center for Learning and Re-Education, University of Wisconsin, Madison. 1966. pp. 1-9

The R and I Unit has the same instructional functions as any other school class. In addition an attempt is made to develop an exemplary instructional system in each Unit. An exemplary instructional system is developed by identifying the objectives and stating them in terms of specific student behaviors anticipated, ascertaining the capabilities of the students, planning an appropriate instructional program, evaluating the results, and using the results to improve the system.

Besides instruction, the R and I Unit has research, development, innovation, and diffusion functions which set it off sharply from any structure now existing in the schools. It provides an organization to carry out controlled experimentation on any element of an instructional program such as content, method, materials, and media. For example, schools are being deluged with suggestions for innovation. The R and I Unit within a school system can try out and evaluate promising innovations. If the innovation works well here it can then be tried out in several regular classrooms.

Another Approach to Innovation. In order to meet the challenge of change in the classroom, the Kettering Foundation has established the

Institute for the Development of Educational Activities (IDEA).[3] This project is operated by the foundation itself and has a Division of Research and Development headed by Dr. John I. Goodlad, Director of the University Elementary School at UCLA.

IDEA will work by first subjecting innovative practices to basic feasibility research in the University Elementary School. If a concept survives this first test, it will next be tried out in some of the classrooms of 20 cooperating schools in southern California.

If the concept survives this test, it will be put into practice within a consortium of demonstration schools. Each demonstration school will hire a program director and a research director to engineer the concept into the day-to-day curriculum. The program director will be responsible for the overall effort and for explicating the new concept to visiting observers. The research director will share this responsibility and will work with the school staff in implementation and evaluation of the new practices in this school setting. These demonstration schools will represent an effort to bridge the gap between university people and school people in the promotion of useful ideas.

Studying Educational Change. Still another development that is very pertinent to our topic is the establishment of the National Institute for the Study of Educational Change at Indiana University.[4] This project is in the planning stage this year and is expected to become fully operational in the fall of 1967. It is expected that the Institute will seek to stimulate institutional research and development programs through working relationships with field associates such as regional educational laboratories, public school systems, state departments of education, and similar agencies. Four promising institutions will be selected each year as field associates. The Institute and field associate will plan an intensive one- to two-week seminar for the staff of the agency aimed toward identifying strategies and models appropriate to research and development programs in the field associate setting. The full resources of the Institute will be made available to the field associate during this one-year period, with less intensive involvement being maintained in subsequent years.

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[3] Tom Kaser, "Idea: Prescription for Change." Saturday Review. June 18, 1966. pp. 68-69.

[4] Egon G. Guba, Director. National Institute for the Study of Educational Change, (Brochure). Indiana University, 825 East Eighth Street, Bloomington. (1966).

The Regional Laboratories. The various regional laboratories have interests and programs which will also mount attacks on this general problem of the gap between innovation and research on the one hand and practice on the other. For example, the Southwestern Cooperative Educational Laboratory is sponsoring this Institute today and it has sponsored a similar institute for us in Oklahoma. The laboratories are developing many other types of programs and projects which will deal with the problem of promoting and evaluating change in schools.

Projects to Advance Creativity in Education (PACE). If you feel that schools may remain relatively untouched by the developments that have been described in the preceding paragraphs, it will be almost impossible for them to remain untouched by Title III and Title I proposals. PACE is Title III of ESEA and is more generally known as providing for Supplementary

Educational Centers and Services.[5] It is not intended that PACE support basic research activities. However, exemplary projects under PACE will involve a greater degree of evaluation than many schools now give to their regular program.

For example, plans for evaluation of such a project on improvement of reading skills may include something like the following aspects:

1. Regularly scheduled evaluation meetings of the teachers and administrators of participating schools
2. Project director's own evaluation
3. A report on the response of the communities to the program
4. A comparison of results on the standardized tests of the regular school testing program
5. A survey of student reactions to the program including:
    a. Evidence of self-improvement in reading comprehension, vocabulary, spelling, and writing
    b. Evidence of higher achievement in other academic areas
    c. Evidence of increased interest in outside reading.

Title I Projects, ESEA. Perhaps more schools will be directly affected by Title I projects than any of the other developments described.[6] In Title I, school administrators are directly confronted with the problem of preparing proposals and planning and conducting evaluation of projects. Of course, they can and do seek help for this purpose. But the point here is that more than just a perfunctory evaluation is required.

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[5] Department of Rural Education, National Education Association. A Guide for Developing (PACE) Projects to Advance Creativity in Education. Washington, D. C. 1966. 94 pp.

[6] U. S. Office of Education. Guidelines: Special Programs for Educationally Deprived Children. Government Printing Office, Washington, D. C. 40 pp.

The crucial importance of evaluation is underscored by the fact of its mention in four different sections of Title I. In effect, evaluation is required by local educational agencies, state agencies, the U. S. Office of Education, and a National Advisory Council. Evaluation as defined under Title I is the process of assessing the extent and direction of change resulting from an educational experience. Indices of change may include objective measurements of the following:

1. Achievement in the basic educational skills
2. Levels of educational attainment as evidenced by dropout rates
3. Educational motivation as evidenced by attention, performance, and attendance
4. Behavioral deviations and other special handicaps to educational progress.

What is Possible in the Usual School Situation?

For those who suggest that not much is possible in the usual school situation toward closing the gap between research competence in universities and local school practice, let me observe that such a position is untenable. If one acknowledges the existence of the gap, then we should find new ways of overcoming the void. I, for one, propose that we can make significant inroads on the problem when responsible persons from local schools, state departments of education, colleges and universities, the laboratories, and other agencies join in a plan of action which includes demonstration, evaluation, and research. I suggest that we use the programs under Title I, ESEA, in this cooperative thrust.

We appreciate that many educators will be skeptical of this approach. You may suggest that school administrators such as yourselves will feel apprehensive about the notion. We agree. But let me briefly review a few of the things that we are trying in some of our work that indicate we are all starting at some kind of a low point, but that many of us are interested in moving forward.

Teachers and Administrators in Same Relative Position. At an Institute in Oklahoma similar to the one today, and also sponsored by the Southwestern Cooperative Educational Laboratory, we gained a few insights into the teacher-researcher role and the administrator-researcher role. Teachers and administrators reacted to a set of research-type behaviors which they said they felt they should do but perceived that they actually do not do. Responses by teachers and administrators were consistent for these behaviors:

1. Makes new approaches to the problem when the first approach is unsuccessful
2. Carries through until a task is finished
3. Invites ideas of fellow teachers on similar problems
4. Shares the results of experiments or "tryouts" with others when outcome is successful
5. Systematically observes social interactions of students in the classroom
6. Obtains test data for each student taught
7. Obtains personal information (other than test data) for each student taught
8. Reads available test data for each student early in each school term.

These results suggest that administrators and teachers are similar in their perceptions of certain research-type behaviors. We know, too, from certain other surveys that the immediate change agent for recognized innovations in schools has in the past usually been the school superintendent. But we know too that the possibility of introducing innovations in schools has the best chance for success when relationships are good between innovator and principal, between innovator and superintendent, and between innovator and the school staff. Thus it is our notion that we are starting from a common ground in the schools, and that our research-minded individuals with whom we will seek to work may be teachers, or principals, or superintendents but in a situation where each knows what is going on and is supportive of each others roles. It appears, too, that school administrators will need to become comfortable with the notion that their research specialist might be a classroom teacher who is released part time for research related activity. In our current activity, the person we will be working with most is the director of federal projects, whoever he might be.

Oklahoma Public School Research Council (OPSRC) and Title I. We have a fairly new organization, based at Oklahoma State University which is known as the Oklahoma Public School Research Council and in which membership is by school systems. At present we are concentrating on a membership of several score of the leading school systems. Our intention is to develop a group that is distinctly different from the usual school study council. We are doing some of the things that such organizations customarily do but our major focus is upon the research concerns of the member school systems. Our method of working is to help them help themselves.

One of our recent activities was a Project Planning and Evaluation Workshop for Title I, ESEA. This activity was co-sponsored by the State Department of Education and was supported financially by the OSU College of Education. It was primarily a work session by about 45 participants on preparing proposals for Title I and for including in them plans for evaluation, some of which would include some elements of research design.

As a follow-up to this activity, the OPSRC provides two days of consultant help to member school systems as a benefit of membership. We have part of the time of three faculty members to engage in this service which is available to school systems for research related activities. Most of our work up to date has been on planning for the evaluation of their own Title I projects.

Early in December, the OPSRC has been invited by one of the regional laboratories to cooperate in a three-day statewide workshop having these specifi purposes: (1) apprising participants of ESEA proposal guidelines, (2) actual participation in writing a proposal with consultant help, (3) a critique-review session of the proposals that have been written, and (4) hopefully that participants may assist in future area workshops within the state. Much of this program will be taken up with research-related processes. Membership in this workshop will be restricted to about 30 and will include school personnel, college and university personnel, State Department personnel, and laboratory personnel.

These brief descriptions of our activities give some indication of the direction in which we are moving. It is necessary now to present some notions of what we believe is possible.

Research-Type Activities Possible in Local Schools. While the research design giants are arguing about the rigor of research possible in school systems, we take the position that all research is on a continuum that goes from the more rigorous to the less rigorous. We expect research to be more rigorous in the universities but it is not necessarily so. We expect research conducted in local school systems to be less rigorous but I would claim this, too, is not necessarily so. The over-riding fact is that research-type activities will be mushrooming in school systems. So the question is one of what we can do under these circumstances.

May I turn the question to you. What can we expect of our federal projects directors or the classroom teachers that we develop into our research specialists. We are talking about the kind of behavior in such personnel that is probably somewhat akin to hypothesis formulation, testing, and revision. We ask you is it too much to expect of them to learn and to demonstrate some of the following kinds of behaviors:

1. Sensing question-raising issues
2. Defining specific issues
3. Knowing where to go and how to get and actually to get related information
4. Formulating hypotheses (expository statements, questions) about issues
5. Identifying the crucial factors relating to issues
6. Testing the stated relationships
7. Checking the validity of the procedures
8. Placing the findings in larger relationships of which they are a part
9. Revising procedures and reformulating approaches to issues.

These suggested behaviors would need to be added to, evaluated, and revised so that our personnel would know and realize some personal outcomes (and hopefully our process will encourage these outcomes to spread among classroom teachers) such as the following:

1. Their reading habits would be modified to focus more sharply on their instructional objectives
2. They would clearly embody inquiry-related behaviors in classroom teaching
3. From time-to-time they would carry on action research projects in their classroom (school)
4. Their classroom procedures would become more logically related to their educational objectives
5. They would become more insistent about increasing the reliability of the information used in making instructional decisions.

What is Expected in Title I Evaluations?

We have been considering some general research-type behaviors which might reasonably be expected of our teacher turned research specialist. We turn now to some specific evaluation designs that have been proposed for evaluating Title I projects. The guidelines propose that in keeping with the behavioral objectives that have been defined for a project, evaluation procedures will normally involve obtaining appropriate measurements at the start of the project, during the project, and at the end of the project. Several evaluation designs are also proposed.

One suggested design is change in a Title I group compared with a designated norm. In this design, when a standardized achievement test is administered to a group, the change in achievement of students in the project can be compared with expected change based on published norms for the group.

Another suggested design is change in a Title I group compared with change in a control group. A control group here is one similar to the Title I group with respect to variables important to the specific project or program such as ability and socio-economic level. Ideally the students would be randomly assigned to the Title I group and the control group. This is a standard research design used often in educational experiments.

From this design it is but a short step to think in terms of variables and the statistics which help us make our interpretations. Generally speaking, all research is carried on in terms of variables. The variables are simply the dimensions which are being studied such as the behavior patterns of teachers in the classroom. Unfortunately, the scope of any research cannot be limited simply to those variables in which the researcher has interest; there are always other extraneous variables that interfere which are sometimes termed "confounding variables." The variable of interest to us is termed an "information" or "experimental" variable.

It is possible to deal with confounding variables in two ways. For example, if your research is likely to be influenced by the intelligence of the subjects involved, it may be possible to match subjects in terms of intelligence scores. A second way of dealing with confounding variables is by means of randomization -- statistical practice. Randomization does not get rid of confounding variables, nor does it control them in any way. The confounding effects remain in force and influence the research as they normally would. The randomization process, however, gives us an opportunity to assess the size of the confounding effect and to take it into consideration in making our interpretation.

Research then may be thought of as dealing with four classes of variables: (1) information or experimental variables, (2) confounding variables, (3) controlled variables, and (4) randomized variables. The object then of experimental design is to eliminate confounding variables by converting them into either controlled or randomized variables. Ideally, we would like to control all possible sources of confounding, but this is not usually possible. Every research, therefore, retains some randomized variation -- error, and we are concerned with estimating the amount. Statistics is, then, the science of comparing the variation of information variables to the variability of randomized or error variables. Thus, the basic statistical idea is very simple: if information variation is only of the same size or order as the random variation, there is no basis for supposing that what we presume to be information variation is anything other than random chance fluctuation. If, on the other hand, the size of the information variation is sufficiently larger than our estimate of the random variation, we have some basis for believing that the information variation is "significant."

The point of this discussion is that the school superintendent is responsible for an evaluation that is more than cursory. He can request an outside agency to do this for him. Or he can develop staff to do this. I am suggesting that the superintendent take the latter step with as much assistance as is needed. This I see as the road to disciplined innovation in our elementary and secondary classrooms.

Some Disclaimers. At this juncture I want to say that we should not expect too much of research. Many of us are prone to believe the research will provide exact answers to most questions that we might ask. This is a vast misconception. Most research results in a statement of relationships subject to interpretation by definite logical procedures. Nevertheless, I do claim for research that it is the most important way of knowing something that we have. It seems hardly necessary to add that the research way is appropriate for use in our schools.

Another caution is that a given school staff is not going to conduct research on every innovation it may wish to try. It is true, however, that we need many replications of our more important studies so that those notions may be tested under many different circumstances.

Position Maintained. You may say that the direction I have described will really result in a vast dilution of our research. I don't think so. As we develop these research specialists in our schools we will be developing a vast audience who will be receptive to other research findings. We do not have the audience we need now. The development of this group to fill our research gap will provide benefits upward to the universities because some of these people will rise to challenge our best researchers. The development of this group will benefit the schools in which they work because they will be demonstrating the scientific process in ways and to an extent never before possible.

DOES SCHOOL MAKE A DIFFERENCE?

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The title is not given in a facetious mood. It's asked in all seriousness. As a member of a professional organization whose prime purpose is to carry on research as to what it is that happens in schools that makes what differences to what children. I, at least, must look at this question carefully. Does the whole educational organization make any sense in terms of the kind of outcomes that we expect from it. Does the social organization called the school that was originally organized at a time when people lived in the same town, grew up with the same neighbors, went to the same schools and the same churches, married the girl across the street who incidentally had the same background, and moved back into a house down the street, existed on one job and lived and died as members of a particular community, have any liability in a world of constant change? This seems to me the basic question which we must face. We can phrase this in more general terms for society as a whole in what kind of a human animal is the society trying to create as its primary tool of continuing its existence through succeeding generations. As I see it, as a person of counseling background who has been bitten by some of the things the operationalists have to say, conflict between the humanist viewpoint and the operationalists cannot be ignored. I think the viewpoints of the socially conscious humanistically-based person with broad-based social aims are in themselves not very different from those of us who want to directly influence behavior but our means to an end might be quite different. It is the means that those of us charged with the conduct of schools must look at.

Let's wonder together. What is it we want to happen as a result of this particular institution called the school as to its influence on children to be anyway. Let's have no patience with "I want my kids to get along better, I want my children to appreciate literature, I want to build good citizens." Let us instead define what specific outcomes we want this whole institution, the school, to accomplish in terms of behaviors of children when they leave that institution and then let us break this down further into specific objectives that we want the individual teachers and subject matter to accomplish. I like to go into a classroom and go up to a teacher's desk and say "Say, lady," (I don't know why it always has to be lady, but it is), "What is it that you taught last week to these kids that you really think they will have to know or accomplish twenty years from now?" "Well, I'm teaching reading." "That's fine--What do you mean by teaching reading?" "I want them to learn to read, of course." At this point things start to get a little bit hostile. "Well, at what level do you want them to read? How many of your kids are actually going to be reading and what are they going to be reading fifty years from now? What skills will they need to have to do that? Will they be looking at a television set with mostly pictures and do they need to get more communication along that line?" Well, these questions just get me in trouble. I think we had better figure out what kind of world we can predict in our cloudy crystal ball, and then estimate what kind of skills it will take to exist in that world. What kind of attitudes, aspirational levels and achievement modes are going to help people get along and what strategies will help to solve the ambiguities that that particular world of the future will have in it? Let us decide first, not last, how we propose to measure or at least know if the outcomes that we have desired as a result of school experiences do indeed take place.

This is the whole purpose behind the establishment of the Laboratory. For example, if sessions with classrooms where groups of teachers are studying kids have a simple-minded goal in a school of reducing or, if you prefer, increasing the number of kids sent each week to the office for discipline--fine, at least we'll know then what it is we're trying to accomplish by a teachers' study group, or by any other innovative procedure that we've introduced in the school. We have some way of measuring the results before we start its program. We'll then be able to intelligently plan our attack upon the problem--in this case, getting teachers to study kids--in a manner that might relate to the terminal objective performance desired of more kids or less kids coming to the office. The result is for the original planners to decide.

Secondly, how can we then design a program for particular children, particular teachers, and particular administrators, that will achieve our long-term broad objectives and our more specific daily objectives? Do we really want to teach content, or do we want to primarily create an atmosphere for learning which will be conducive to change? If we should choose the former, a study of the process by which content is set (from the teacher, or blackboard, or textbook, to the student), and received by the student may help. If we choose the latter alternate, we had better design a program that makes individuals aware, in some measurable fashion--whatever that entails, of their own work or life style--in such a manner that they can release the potential found in the personalities of kids, teachers, parents and those with whom they work. It's my theoretical bias that, first, logic accounts for almost no behavior, conscious or unconscious. Need satisfaction does account for most behavior. Therefore, some kind of bringing together of the self-theory that most of us are imbued with and the principles of reinforcement is essential, and it's my attempt in this paper to try to bridge the gap between the clinician and the reinforcement behavioral engineer.

Second, we can shape values and attitudes in much the same fashion that we presently use reinforcements to teach kids not to wet their diapers, or to read: Small-step learning, immediate knowledge of results, fairly regular successes and self-pacing. You know, I've always wondered why it works pretty well with diapers but we don't apply it to the teaching of honesty.

Third, insight is of relatively little value in securing direct behavioral modification. I have counseled too many alcoholics who have all the insight in the world and who walk out of my office to the nearest bar. I have also taught principals to listen and to respond to what teachers are feeling, rather than to what teachers are saying, and then have the same principals report countable, measurable reduction of instances of faculty griping and other evidence of dissension per month.

Fourth, the greatest chance for implementing stable behavioral modification lies in helping kids in groups toward an understanding of their own, and other's needs, defenses, and styles of expressing their personalities, including typical problem-solving strategies, reactions to anxiety, and threat-provoking situations. I'm interested to see the behavioral engineer's reaction as I try to make this jump from self-theory to reinforcement theory and to see if it applies right down the line. The Southwestern Cooperative Educational Laboratory has been funded by the government to improve education in the region, to develop educational programs more suited to the needs of the various cultural, ethnic, social and economic minority groups who live in the Southwestern region. It has been long recognized that traditional school programs oriented toward the Anglo middle-class child have failed to prepare the Spanish, Indian, and poor white child for an adequate level of economic self-sufficiency and social functioning. Schools have generally failed to recognize or to provide for the cultural, economic, and social characterististics of these children. The results are revealed in all the ugly statistics of dropout rates, low achievement, high unemployment and excessive and growing crime rates. This question may be asked: What specific changes would you like to produce in these students that would make them more economically independent and socially adaptable? It's very important to spell out in some detail what specific behavioral change we expect to being about in our clients, and I think this works just as well in the classroom as it does in a therapeutic situation. This will allow us to better plan specific learning experiences and then to evaluate whether or not our programs have been successful in achieving the objectives that we ourselves have pronounced. In educational terms, we first have to decide what are the needs or problems that these kids have in our classrooms, and then how we're going to help them in terms of methods and materials in order to help them function economically, socially and happily. We must identify in some way what the shortcoming in the educational environment is before we can try to suggest a prescription that will alleviate the condition described. Then we have to translate this prescription into kinds of activities that we're going to conduct with kids rather specifically, and some kinds of behaviors that we hope the kid will produce at the end of his time with us. If he comes into Spanish class with you in September, what is it by December that you want to have happen? "Well, I want him to understand the Spanish culture." "Well, that's just fine--You mean you want him to learn to eat chili?" What is it you have to accomplish specifically? Exactly how do you translate a knowledge of the appreciation of the Spanish culture into something that you can see and then know whether it did or didn't happen? If you want to teach him so many words of Spanish, that's fine. Then, to find your goal, it becomes so many words of Spanish recognized within such and such a unit of time at such and such a degree of proficiency. I believe this can be done with attitudes as well as with the more direct kind of learning. We want these students to behave in certain describable ways after we've helped them. We have to define what we want them to be able to believe as well as do. We've got to develop what's called a program or a series of small learning experiences which will try to accomplish whatever it is that we originally wanted them to accomplish. If we've wrongly identified the problem or need or wrongly diagnosed the kid's particular learning deficit at the start, we're not going to turn out a very good program in the end. As a general strategy, if we look closely at this, we find that we've got to do two things to get these objectives down to where we can really work with them. First, what degree of mastery do we want the student to show after we've taught him the particular attitude or skill, and secondly, what criteria are we going to use to determine whether that performance is or isn't acceptable at the particular level of success we have previously set? So an objective must have three things in it: First, it has to be fairly specific--it has to tell when we want the behavior or attitude to happen. Second, we must describe the condition under which we expect the behavior to be demonstrated. We were talking about eleventh grade citizenship learnings, social studies or history. It's useless to talk about citizenship if a kid doesn't vote in the school election next week. So let's define when we want this behavior to take place and under what conditions. Third, what kind of standard of performance are we going to be satisfied with, as illustrated with the Spanish a little earlier. With voting, this might be a little more difficult to do--that is to establish a standard. However, the standard might well be, can he answer certain questions that would tell you what the policies of the conflicting candidates are at an "X" degree of quality as a performance level. Now this sounds like I'm talking about pure learning. Is this attitude or behavior transferable, or do some of the things that the occupational theorists talk about in terms of the roles that kids have to take over and their related achievement motives that are a sort of modifier which apply and delimit? It is my contention that the theory is equally applicable to less discrete attitudes and values. There is a difficulty, however, and the difficulty is that it's not so nice and neat when you go over to the area of roles and attitudes as it was when we were talking about diapers or reading or being sent to the office. Perhaps a summary of the concepts would be in order. A social role to me is a set of behaviors which accompany a given position in society--the prescribed and expected behaviors regardless of who is acting out or occupying the role at the moment. A man behaves differently when he's acting out the role of a husband in our society than when he's being a father, or, God help him, a teacher. Furthermore, it is expected that he should so change and adapt by other members of society, who themselves are playing out various roles, as when he is in a bar with his fellows, and when he's home telling his kids to go to Sunday School. A role, then, consists of two components: one, prescribed behaviors that society sets (as a father you shouldn't whip your kids too hard), and, two, expected behaviors (you are expected to punish them). This supports a certain order and structure of society. When a person interacts with other members of society, he knows how to act himself and what actions to expect from the other persons based upon the particular roles both play in the course of their interaction. Persons learn roles in the process of becoming full-fledged members of society when they first learn to act out the role of the child, and still later the husband, father, grandfather, senior citizen, etc. What they are really learning are behavioristically defined skills necessary to act out these roles and attitudes which can be shaped by the home and the school and which then will influence their other roles. The learnings are internalized and become part of one's own personality or life style. Roles are learned just like diapers and that this learning incorporates both the skills necessary to perform and the attitudes felt or directly demonstrated which accompany the role. I think schools might well address themselves to this as the major thesis of the educational program. The more roles a person has the opportunity to practice and to interact with, the more roles he's then able to learn and to incorporate. We know that the experimental base of minority group children is pretty narrow and that the roles they then can occupy become equally narrow. In designing educational programs to meet the needs of these minority group children, we might ask, "What roles do we want these students to be able to play?" I would suggest that this has a definable process to it. One, we make decisions as to what social roles we want our kids to be able to occupy--gasoline attendant, waiter, college professor, civic participant. Two, we observe these roles around us functioning in society, and we try to figure out what skills we want to shape in this child and have him obtain so that we can then successfully occupy the role. Third, what attitudes he's going to have to have in order that he can occupy this role with minimum punishment and maximum security and success. Fourth, so that he can learn to tolerate this world of ambiguity as smoothly as possible. Fifth, he will be able to incorporate these skills and attitudes, once defined as the objective of the educational system for his children. Six, that we as teachers design what we do each day in the classroom as a program or a series of learning tasks which can best impart these skills and attitudes. This, then, is an attempt to cross over from a humanistic or social orientation to a more behavioristic point of view. What I am really saying here is that we don't have to be quite as specific in the area of attitude as we do when we're trying to designate particular behavior such as dry diapers, when we prescribe the expected behaviors that are inherent in the social roles. What we must do is become more skillful in observing the role and in figuring out what skills and attitudes we want to shape and then take our strength in our hands and go about seeing ourselves doing it and setting our own goals so that we know what it is that makes a difference in our classrooms in what proportion to what children. A major goal should be, not just to know that we did a good job, but what it was that we did that made it good. Further, what it was that we did that was good in order that some other teacher can do or replicate. I have very little patience with programs based upon one teacher's outstanding, sparkling personality, or one particular conglomerate of kids at one place and one time. I want to see us develop programs that are transferable and that can be used by all teachers of all levels of ability, by teachers of all kinds of personality with all kinds of kids in all kinds of communities. This is the principle behind what we have called the 'explorable package' (a major thesis that the Laboratory is trying to develop). We're going to work then for an understanding of children's needs, defenses, and styles in terms of the roles that we want them to occupy and how we need to shape those roles as adults. Dreikurs says, "The dilemma of our time is that we are not prepared to live with each other as equals. There is no tradition to guide us. The traditional methods of dealing with each other are based on autocratic principles of the past, that every conflict was resolved by the one who won out; the subdued had to accept the solutions imposed upon him. Today solutions achieved through force are short lived. The power and superiority of everyone is constantly challenged and therefore is only temporary. Conflict will always exist. It is not possible for everybody to always have the same wants, but we need a new machinery for solving conflicts. In a democratic setting it is necessary to reach agreement about what kind of people we want to produce and to go about producing them rather than to overpower each other." We don't know exactly how to do that. He further says, "On the other hand, when we are not sure of our own adequacy and worth, we cannot then shape others' behaviors with respect because we do not respect ourselves. To make it worse, we may even try to remedy our self-doubt by pushing others down in a systematic fashion. This process of self-elevation is at the root of most unresolved conflicts." The real issue is whether we know how to do this and whether we have a good idea of what kind of individuals we want to produce for society. I think Virginia Mae Axline has really said it all. She says, "We must push beyond to achieve more adequate educational provisions for individual education so that the elements of dealing with the tensions, frustrations, and conflicts in the world can be handled, and the deficiencies will not anchor the individual forever in one spot, but will free him to develop his capacities, skills, and attitudes." We would attempt to provide the kind of school experiences that will give the child the strength to state himself openly and freely, so that he can obtain a healthy adjustment and so that each and every child can achieve the strength to look up and say, "I am Junior; I like what I do." Thank you.

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